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Certain conditions requisite to conscious thought are beginning to be defined. But what sort of relation these conditions bear to this manifestation, no one has discovered a single fact about. The causal law, the theoretical necessity, eludes us utterly."

### *Mind and Force.*

*Editor of the Journal of Speculative Philosophy :*

I was much interested in the abstract which you gave, in the last number, of the views of Dr. Brinton on life, force, &c. The Doctor appears to be an anti-materialist; but he seems to me to allow too much weight to the second horn of his dilemma (p. 377) when he says, "All mental and physical force expended being exactly equal to the force in the form of nutriment received, clearly the mind, if there is any such independent thing, contributes *no* force at all. \* \* \* This is demonstrable." If this is demonstrable, I, for one, would be obliged to Dr. B., or any other person, for a sight of the demonstration. I have read all I have had access to on this subject, and have yet to see the slightest shadow of proof of his statement. I have regarded it as founded wholly on a surmise of Dr. Carpenter: that, as the forces of inorganic nature can be reduced to a single formula, that formula may be extended to organic being. This idea has been caught up by physiologists, and repeated by one and another so often, that, as usually is the case with great story-tellers, they have to regard it as true. Efforts have indeed not been wanting to tabulate the forces which the movements of living beings display, but still they refuse to arrange themselves under the mathematical yoke. From the time that Dr. A. Flint, Jr., compared the amount of urea secreted by a man lying on his back in a hospital with that of a man taking severe exercise, and found little or no difference, to the time of the ascent of the Faulhorn by Wick and Wislicenus, every attempt to link the muscular energy expended with the food consumed, either by decomposition of the muscle itself, or by that of the elements of the blood, has been a failure. If there is a greater amount of carbonic acid evolved during muscular exertion than in a state of rest, there is a coëxistent activity of the nervous system which may, and in my opinion does, account for it. More is also evolved during the waking than in the sleeping state, irrespective of exercise. These facts, together with the consideration that the brain is the only organ of a single tissue to which the blood is sent arterial and returns venous in large quantity, implying that decomposition of the elements of the food which produces force; while the various secretions, as of the liver, kidneys, salivary glands, &c., are manifestly indifferent to it; and taking into view the effects of posture on syncope—the narcotization produced when the change from arterial to venous blood cannot take place—the *pari-passu* development of the arterial and nervous system in animal life, and the parallelism of their distribution throughout the body, point irresistibly to the vesicular tissue of the brain, spinal marrow, ganglions, and surfaces of sensation, as the seats where the changes are wrought by which the food becomes power, and there is every reason to believe that this power is expended on the nerves alone. And it may be added that this is the limit of machinery, or chemically formed power, in the human system. And the simple reason is, that such power cannot be made avail-

able for the infinitely varied—in strength, rapidity, and selection—muscular contractions which human needs require. Let any one imagine the performances of an expert pugilist, wrestler, swordsman, rope-dancer, or, more to the purpose, an eloquent orator speaking and gesticulating vehemently; let him reflect on the several muscles brought into play, the frequent changes of their contractions necessary, and conceive, if he can, of his employing a foreign force and directing it on these muscles at will; or suppose him interchanging telegrams between the brain and the muscles while he is pronouncing 1600 letters in a minute, with the gestures thrown in. It is evident that it is not *via* the brain, or *via* pudding, or any other *via*, that the mind acts on the muscles to produce such results. Nothing short of the intimate presence of the mind to the muscles can account for it. Those compromising physiologists who admit a force from without, under the direction of the mind, admit enough for our purpose. For force coming into the body from without, either must *have*, or must have *not*, a direction. If it has no direction, it requires force to give it one. If it has direction, it requires force, certainly, to alter that direction. And if the mind directs, it must furnish that force. And if so, what need is there of any other? Consciousness reveals the *person* as the gritter of the teeth, and that “it is not the blow that kills—it is the *soul* that strikes.” And, in accordance with its evidence, we conclude that, in the activities of the human body, mind avails itself of the physical powers and properties as far as they are available, and supplements them with its own as the crowning work of spirit in matter.

Rockport, Mass., Dec. 22, 1874.

BENJ. HASKELL, M.D.

### *The Definition of Life.*

*Editor of the Journal of Speculative Philosophy:*

In the preference given to the definition of life by Cuvier, I think Dr. Brinton is also at fault; and especially in the stress he lays on form as “the gist of the distinction between organic and inorganic nature.” Not only is form manifested in crystalline structures, but each elementary or compound substance brings forth according to its kind. And, to complete the parallel, the Crystal after its death or dissolution, if revived, returns in its original form with mathematical exactness. If therefore we accept, on the authority of the Doctor, and the Poet, the doctrine that

“Eternal form shall still divide  
Eternal soul from all beside”

after time closes, still less can we agree with the Doctor that form is the pathognomonic symptom of life. For how can that which exists before life begins, and continues after life is ended, be the criterion of life itself? The definition of life by Cuvier, not only in respect to form, but in all its essential points, is as applicable to the inorganic world as to the organic. What is the growth of the crystal but the assimilation of surrounding substances by a fixed and regular process, which he (Cuvier) also ascribes to life as its special prerogative? The fact that this growth is an accretion from without, while organic growth is from within, is no more a diremption of the process of life than the involution of the skeleton from circumference to the